

REMARKS

Applicants note that in the May 19, 2009 Office Action, Examiner rejects pending claims 17–19, 22–39, and 42–47 under 35 U.S.C § 103(a) as being obvious over Kazuma et al. (EP 1028455A2) in view of Adkins (US 7,047,857). Additionally, Examiner objects to pending claims 40–41 as allowable but dependent on a rejected base claim.

As set forth below, please amend claims 17, 24, 31, 33, 36, 40, 43, and 46. Support for the amendments to claims 17, 24, 31, 33, 36, 40, 43, and 46 can be found in the specification and drawings of the present application and Applicants respectfully submit that no new matter is added.

Rejections under 35 U.S.C § 103 for claims 17 – 19, 22 – 39, and 42 - 47

In the Office Action, Examiner rejects pending claims 17 – 19, 22 – 39, and 42 – 47 as being unpatentable under 35 U.S.C § 103 over Kazuma et al. in view of Adkins.

A) Independent claim 17

In the Office Action, Examiner asserts that Kazuma discloses the following:

- a) providing: a first movable mount (transfer means 14) for moving between a loading location (transfer unit 12) and a cutting location (cutting unit 11);
- b) moving the first movable mount (14) from the loading location (12) to the cutting location (11) with the at least one packaged substrate disposed thereon;
- c) cutting (via cutting means 19) the at least one packaged substrate (25) in a first reference direction (Y-axial direction) at the cutting location (11);
- d) transferring the at least one packaged substrate (25) from the first movable mount (14) to the second movable mount (24) at the cutting location (11);
- e) cutting (via cutting means 19) the at least one packaged substrate (25) in a second reference direction (X-axial direction), the second reference direction (X-direction) being perpendicular to the first reference direction, at the cutting location (11); and
- f) moving the second movable mount (24) from the cutting location (11) to the unloading location (boarding section 23) for transporting the plurality of packaged semiconductor devices (25) the unloading location (23).

Applicants first consider Examiner's assertion that Kazuma discloses a) providing: a first movable mount (transfer means 14) for moving between a loading location (transfer unit 12) and a cutting location (cutting unit 11).

Applicants note in accordance with Kazuma's explicit teachings, Kazuma's transfer means 14 is itself a portion of the cutting unit 11, as clearly recited in paragraph 23 of EP 1028455, and as depicted in FIG. 1 and FIG. 3. As explicitly shown in FIG. 1 and FIG. 3, the entire range of motion of Kazuma's transfer means 14 is limited to the physical bounds of Kazuma's cutting unit 11. Kazuma's transfer means 14 is specifically designed to transfer a substrate 25 from a cassette 13, which is *not* a portion of the transfer unit 12 as clearly indicated in FIG. 1 and FIG. 3, to a tentative storage area 15 that is a portion of the cutting unit 11. Specifically, in paragraph 25 of EP 1028455, Kazuma teaches "The transfer means 14 takes a selected CSP substrate 25 out of the cassette 13a to transfer it to the tentative storage area 15." Kazuma further states in paragraph 29 of EP 1028455 that a "fourth transferring means 24 transfers the cut CSP substrate 25 (*sic*) from the tentative storage area 15 to a boarding area 23 where the cut CSP substrate 29 is picked up to be transferred from the tentative storage area 15 to the transferring unit 12." Kazuma additionally explicitly states in paragraph 33 of EP 1028455 that "A shuttle transferring means 40 takes a selected cut CSP substrate 29 from the boarding area 23."

Thus, Kazuma's transfer means 14 does not move either itself or any object it carries between the cutting unit 11 and the transfer unit 12. Moreover, in view of Kazuma's teachings in relation to FIG. 1 and FIG. 3, as well as Kazuma's teachings in relation to FIG. 11, Kazuma's transfer means 14 is not capable of moving between the cutting unit 11 and the transfer unit 12. Examiner's assertion that Kazuma's transfer means 14 is a first movable mount for moving between transfer unit 12 and a cutting unit 11 is inaccurate.

Applicants next consider Examiner's assertion that Kazuma discloses b) moving the first movable mount (14) from the loading location (12) to the cutting location (11) with the at least one packaged substrate disposed thereon.

Application notes that Examiner has ascribed the term "cutting location" to the entirety of Kazuma's cutting unit 11. Given that Kazuma's transfer means 14 forms a portion of Kazuma's

cutting unit 11, and Kazuma's transfer means 14 itself cannot reach, access, or extend to Kazuma's transfer unit 12, Kazuma's transfer means 14 is capable only of moving from Kazuma's cutting unit 11 to Kazuma's cutting unit 11. Kazuma's transfer means 14 is incapable of accessing Kazuma's transfer unit 12, and hence is incapable of moving from Kazuma's transfer unit 12 to Kazuma's cutting unit 11. Kazuma thus fails to disclose moving the first movable mount from the loading location to the cutting location.

Furthermore, Kazuma explicitly teaches in paragraph 22 of EP 1028455 that the transfer unit 12 is directed to "transferring pellets *from* the cutting unit 11 to carrier trays"; and Kazuma further teaches in paragraph 33 of EP 1028455 that a "shuttle transferring means 50 takes a selected cut CSP substrate 29 *from* the boarding area 23." Hence, substrates flow *from* the cutting unit 11 to the transfer means 12. Aside from the fact that Kazuma's transfer means 14 is incapable of accessing Kazuma's transferring unit 12, Examiner's assertion that Kazuma teaches "b) moving the first movable mount (14) from the loading location (12) to the cutting location (11) with the at least one packaged substrate disposed thereon" would require that Kazuma's system take a substrate from the transfer unit 12 (which is an apparatus onto which substrates are *unloaded from* the cutting unit 11 *after* the substrates are cut) and transfer the substrate to the cutting unit 11. Such a substrate flow is in reverse order to that which Kazuma clearly teaches, and such a construal requires a portion of Kazuma's system to run in reverse.

Examiner does not provide any rationale as to why anyone of ordinary skill in any art would have any incentive to run a portion of Kazuma's system onto which substrates are *unloaded from* the cutting unit 11 in reverse, i.e., *backwards* in opposition to Kazuma's substrate process flow, and further modify Kazuma's system to provide Kazuma's transfer means 14 with access to the transfer unit 12 when Kazuma specifically teaches an entirely different substrate transfer configuration. Examiner apparently bestows upon portions of Kazuma new, undisclosed functionality, without providing any indication that anyone of skill in any art would have any awareness of any need or use for such new, undisclosed functionality.

Notwithstanding the foregoing remarks that Applicants maintain, Applicants seek claim allowance without further delay, and has amended claim 17 specifically for expediting such claim allowance. Amended claim 17 recites the following:

A method for cutting at least one packaged substrate, the method comprising:

- a) providing:
 - a water jet cutting tool for supplying a water jet;
 - a first movable mount for moving between a loading location and a cutting location; and
 - a second movable mount for moving between the cutting location and an unloading location;
- b) moving the first movable mount from the loading location to the cutting location with the at least one packaged substrate disposed thereon;
- c) *while the at least one packaged substrate is disposed on the first movable mount*, cutting the at least one packaged substrate in a first reference direction using the water jet supplied by the water jet cutting tool at the cutting location;
- d) transferring the at least one packaged substrate from the first movable mount to the second movable mount at the cutting location;
- e) *while the at least one packaged substrate is disposed on the second movable mount*, cutting the at least one packaged substrate in a second reference direction, the second reference direction being perpendicular to the first reference direction, using the water jet supplied by the water jet cutting tool at the cutting location to produce a plurality of packaged semiconductor devices; and
- f) moving the second movable mount from the cutting location to the unloading location for transporting the plurality of packaged semiconductor devices to the unloading location.

Thus, the at least one packaged substrate is cut in the first direction while it is disposed on the first movable mount, and cut in the second direction while it is disposed on the second movable mount. Kazuma fails to offer any similar teaching whatsoever, and in fact, his system is incapable of operating in the manner disclosed in claim 17 as amended.

No combination of any teaching in Kazuma and Adkins, including any teaching of Adkins relating to any type of water jet, results in or leads to the invention recited in amended claim 17. No combination of any teaching in Kazuma and Adkins results in or leads to a system that can be configured or reconfigured to operate in the manner recited in amended claim 17, or a

method that corresponds to amended claim 17. No individual of ordinary skill in the art would have been led to or toward the invention of amended claim 17 in view of any teaching of Kazuma and/or Adkins, nor would any individual of ordinary skill in the art have found the invention of amended claim 17 obvious over Kazuma in view of Adkins.

Applicants submit that amended claim 17 is in condition for allowance, and respectfully requests that Examiner withdraw the rejection of claim 17 under 35 U.S.C § 103.

B) Dependent claims 18, 19, and 22 – 30

Claims 18, 19 and 22 – 30 are directly or indirectly dependent upon amended independent claim 17. Applicants submit that based upon the foregoing remarks, given the failure of Kazuma and/or Adkins to lead one of ordinary skill in the art to or toward the invention of amended claim 17, dependent claims 18, 19, and 22 – 30 are nonobvious over Kazuma in view of Adkins. Applicants respectfully request that Examiner withdraw the rejection of claims 18, 19, and 22 – 30 under 35 U.S.C § 103.

C) Independent claim 31

Examiner asserts that Kazuma discloses an apparatus for cutting a packaged substrate (CSP substrate 25) comprising:

a set of transport guides (rails 31) having a length that extends in a first direction between a loading location (transfer unit 12), a cutting location (cutting unit 11), and an unloading location (boarding area 23), the cutting location (11) being disposed between the loading location (12) and the unloading location (23);

a first movable mount (transferring means 14) coupled to the set of transport guides (31), the first movable mount (14) comprising a first rotatable section;

a second movable mount (transfer means 24) coupled to the set of transport guides (31), the second movable mount (24) comprising a second rotatable section;

a first gantry (shuttle transferring means 40) extending in a second direction, the second direction being perpendicular to the first direction;

Applicants first consider Examiner's assertion that Kazuma discloses a first movable mount (transferring means 14) coupled to the transport guides 31, the first movable mount (14) comprising a first rotatable section.

Examiner asserts that Kazuma discloses in col. 6, lines 3 – 7 of Kazuma that transferring means 14 comprises a first rotatable section.

Col. 6, lines 3 – 7 of EP 1028455 are directed to the actual cutting of a CSP substrate 25. Kazuma states in col. 6, line 1 “the cutting blade 19 starts cutting the CSP substrate 25 along the adjacent cutting line. This is repeated to cut the CSP substrate 25 along each and every cutting line 26 in the X-axial direction. Then, the CSP substrate 25 turns 90 degrees, and the same procedure is repeated...”

Examiner concludes that it is Kazuma’s transferring means 14 that facilitates such a 90 degree turn. However, Kazuma specifically teaches in paragraph 5 of EP 1028455 in relation to FIG. 11 that a prior art cutting unit upon which Kazuma’s cutting unit 11 is fundamentally based includes a chuck table 306 that holds the CSP substrate 301 and which “turns 90 degrees” to facilitate orthogonal cutting operations. Chuck table 306 is equivalent to Kazuma’s holding table 16, as can be seen by comparing FIG. 11 with FIG. 1. In fact, the majority of Kazuma’s cutting unit 11 is identical to the prior art cutting unit described in relation to FIG. 11. Any use of Kazuma’s transferring means 14 to turn the CSP substrate 25 between orthogonal cutting operations that are carried out on the holding table 16 would significantly decrease the throughput efficiency of Kazuma’s system, and hence would be a highly unlikely as well as irrational modification to the teachings of Kazuma from a manufacturing efficiency perspective. As Kazuma is attempting to improve substrate throughput efficiency, Kazuma teaches away from performing a 90 degree rotation of the CSP substrate 25 by way of any type of rotation performed by the transferring means 14.

Kazuma’s col. 6, lines 3 – 7 are directed to cutting operations performed on the substrate by a cutting blade 19. Such cutting operations occur while the substrate is held by the holding table 16, as Kazuma explicitly teaches in paragraph 26, for instance, which includes the statement “the holding table 16 is driven in the X-axial direction to cut the CSP substrate with the rotary blade 27.”

Kazuma’s col. 6, lines 3 – 7 have nothing whatsoever to do with the structure of Kazuma’s transferring means 14, and completely fail to disclose, suggest, or provide any incentive for incorporating or any incentive for attempting to incorporate any type of first

rotatable section into or onto Kazuma's transferring means 14. Any assertion that Kazuma's transferring means 14, which is clearly shown in FIG. 1 and FIG. 3 as a separate element from the holding table 16, itself includes any portion of any first rotatable section and/or any portion of the holding table 16 is entirely unsupported by any teaching of Kazuma. Furthermore, neither FIG. 1 nor FIG. 3, which depict Kazuma's transferring means 14, provide any indication that the transferring means 14 includes any type of rotatable section.

Kazuma thus fails to disclose a first movable mount coupled to the set of transport guides where the first movable mount comprises a first rotatable section.

Applicants next consider Examiner's assertion that Kazuma discloses a second movable mount (transfer means 24) coupled to the transport guides 31, the second movable mount (24) comprising a second rotatable section.

Examiner asserts that col. 6, lines 3 – 7, the same portion of Kazuma that purportedly discloses (but which fails to disclose) that Kazuma's transferring means 14 comprises a first rotatable section, also discloses that the transfer means 24 comprises a second rotatable section.

In a manner entirely consistent with the foregoing remarks, Kazuma's col. 6, lines 3 – 7 have nothing whatsoever to do with the structure of Kazuma's transfer means 24, and col. 6, lines 3 - 7 completely fail to disclose, suggest, or provide any incentive for incorporating or any incentive for attempting to incorporate any type of second rotatable section into or onto Kazuma's transfer means 24.

Notwithstanding the foregoing remarks that the Applicants maintain, Applicants seek claim allowance without further delay, and has amended claim 31 specifically for expediting such claim allowance. Amended claim 31 recites the following:

Amended independent claim 31 recites the following:

a set of transport guides having a length that extends in a first direction between a loading location, a cutting location, and an unloading location, the cutting location being disposed between the loading location and the unloading location;

a first movable mount coupled to the set of transport guides, the first movable mount comprising a first rotatable section;

a second movable mount coupled to the set of transport guides, the second movable mount comprising a second rotatable section;

a first gantry extending in a second direction *and bridging at least a portion of the set of transport guides*, the second direction being perpendicular to the first direction; and

a water jet cutting tool coupled to the first gantry and displaceable therealong in the second direction at the cutting location.

In addition to the remarks above relating to Kazuma's failure to teach that first and second movable mounts lack first and second rotatable sections, respectively, no teaching of Kazuma in view of any teaching of Adkins results in or leads to or toward an apparatus having a first gantry extending in a second direction and bridging at least a portion of the set of transport guides, the second direction being perpendicular to the first direction, where the first direction is the direction in which the transport guides extend.

Applicants submit that amended claim 31 is nonobvious over Kazuma in view of Adkins, and respectfully requests Examiner withdraw the rejection of claim 31 under 35 U.S.C § 103.

D) Dependent claims 32 and 34 – 39

Claims 32 and 34 – 39 are directly or indirectly dependent upon claim 31. Applicants submit that based upon the foregoing remarks, given the failure of Kazuma and/or Adkins to lead one of ordinary skill in the art to or toward the invention of amended claim 31, dependent claims 32 and 34 – 39 are nonobvious over Kazuma in view of Adkins. Applicants respectfully request that Examiner withdraw the rejection of claims 31 and 34 – 39 under 35 U.S.C § 103.

E) Dependent claim 33

Even though claim 33 is dependent upon claim 31, and Kazuma and/or Adkins fail to lead one of ordinary skill in the art to or toward the invention of amended claim 31, it appears to Applicants that Examiner may find certain language in claim 32 to be confusing. More particularly, Examiner asserts that Kazuma discloses that the packaged substrate (25) "is cut in the first direction when disposed on" Kazuma's transferring means 14.

In order to eliminate any confusion and clearly convey that cutting operations are applied to Applicants' packaged substrate while the packaged substrate is disposed on Applicant's first movable mount, Applicant has amended claim 33 to recite the following:

The apparatus as in claim 32, wherein a plurality of cuts are made through the packaged substrate in the first direction when the packaged substrate is disposed on the first movable mount.

Applicants submit that nowhere does Kazuma, either alone or in combination with Adkins, disclose or intimate, or remotely convey any incentive that would lead any person of any skill in any art conceive of any need or reason to attempt to make a plurality of cuts through the packaged substrate in any direction when the packaged substrate is disposed on Kazuma's transferring means 14.

Applicants submit that claim 33 as amended is nonobvious over Kazuma in view of Adkins, and respectfully requests that Examiner withdraw the rejection of claim 33 under 35 U.S.C § 103.

F) Independent claim 43

Examiner asserts that Kazuma discloses:

loading a packaged substrate (25) onto a first movable mount (14) at a loading location (12);
transferring the first movable mount (14) to a cutting location (11);
cutting the packaged substrate (25) in a first direction;
transferring the packaged substrate (25) onto a second movable mount (24);
cutting the packaged substrate (25) in a second direction; and
transferring the second movable mount (24) to an unloading location (23).

Examiner further asserts that Adkins discloses that cutting can be done with a water jet tool.

Claim 43 as amended recites the following:

loading a packaged substrate onto a first movable mount at a loading location;
transferring the first movable mount to a cutting location;
cutting the packaged substrate in a first direction;
transferring the packaged substrate onto a second movable mount;
cutting the packaged substrate in a second direction; and
transferring the second movable mount to an unloading location,

wherein at least one of cutting the packaged substrate in the first direction and cutting the packaged substrate in the second direction is performed using a water jet *when the packaged substrate is disposed on one of the first movable mount and the second movable mount.*

Neither Kazuma nor Adkins teach or lead to or toward the invention of amended claim 43, which recites that at least one of cutting of the packaged substrate in the first direction and cutting the packaged substrate in the second direction is performed using a water jet when the packaged substrate is disposed on one of the first movable mount and the second movable mount.

Applicants submit that claim 43 as amended is nonobvious over Kazuma in view of Adkins, and respectfully requests that Examiner withdraw the rejection of claim 43 under 35 U.S.C § 103.

G) Claims 44 – 47

Claims 44 – 47 are directly or indirectly dependent upon claim 31. Applicants submit that based upon the foregoing remarks, given the failure of Kazuma and/or Adkins to lead one of ordinary skill in the art to or toward the invention of amended claim 43, dependent claims 44 – 47 are nonobvious over Kazuma in view of Adkins. Applicant respectfully requests that Examiner withdraw the rejection of claims 44 – 47 under 35 U.S.C § 103.

H) Objection to claims 40 and 41

Examiner has objected to claims 40 and 41, indicating that such claims would be allowable if rewritten in independent form including all base and intervening claim limitations. Applicants have rewritten claim 40 in independent form, including all base and intervening claim limitations. Claim 41 depends upon claim 40. Applicants request withdrawal of Examiner's objection to claims 40 and 41.

I) Additional claim amendments

Applicants have amended claims 24, 36, and 46 for purposes of clarity (e.g., to correct typographical errors). No new matter has been added by way of such amendments.

Conclusion

In accordance with the foregoing remarks, Applicants request withdrawal of rejections of pending claims 17–19 and 22–47 under 35 U.S.C. § 103(a). Applicants submit that all pending claims are now in condition for allowance. Examiner reconsideration and issuance of a Notice of Allowance are hereby respectfully requested.

A one-month extension of time is hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Conley Rose, P.C.'s Deposit Account Number 03-2769/2085-05400. If any additional time extensions or fees are owed, any necessary petitions for extensions of time are hereby petitioned and the Office may charge the above-identified deposit account for any necessary additional fees.

Respectfully submitted,

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